

REMARKS

This is responsive to the Office Action dated January 5, 2004 and Advisory Action dated April 19, 2004. A Notice of Appeal was filed on April 29, 2004. An RCE is filed herewith, together with the appropriate petition for extension of time and fees.

The Examiner maintains the rejection of claim 12 under 35 U.S.C. 102(b) as being anticipated by Chao '030. In order to expedite allowance, claim 12 has been cancelled without prejudice by the accompanying amendment.

The Examiner maintains the rejection of claims 1-6 under 35 U.S.C. 103(a) as being unpatentable over Chao '030 in view of SU 1743887, and claims 7-11 as being unpatentable over Chao in view SU 1743887 and further in view of Nebesnak. The Examiner states that Chao teaches that the first component is a pre-foam and that this pre-foam is mixed with the hydraulic binder to form a foamed final product, and that Applicant has not shown that in his method that the transposition of the steps provides unexpected results.

Submitted herewith is a Declaration of Dennis Hilton, one of the inventors of the present invention. The Hilton Declaration sets forth comparative testing, wherein a method forming a pre-foam is compared to a method where all of the ingredients of the formulation are foamed together in accordance with the present invention. The data demonstrate that the method of the present invention results in a surprising and significant reduction in foam density, which provides a tremendous cost-savings benefit, as significantly more steel can be covered with the same amount of material compared to the method of Chao '030.

In addition, the Hilton Declaration explains why the addition of a pre-foaming step would render the process commercially useless, since it would require significantly more time and labor to form the pre-foam on site, as well as additional expense in heating the PVA solution to obtain dissolution over some reasonable time period. The additional costs associated with these factors would render the product non-competitive.

With respect to the rejection of claims 1-11, Applicants respectfully submit that the Examiner has not addressed Applicant's previous argument that the presence of the screen required by SU '887 in the foam generating device would render the device useless were particulate materials such as hydraulic binders involved. Accordingly, one skilled in the art would not combine the teachings of SU '887 with those of Chao '030, since the skilled artisan would know that the SU '887 method is not feasible where the hydraulic binders of Chao et al. are used.

Reconsideration and allowance are respectfully requested in view of the foregoing.

Respectfully submitted,


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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Dennis M. Hilton, et al.
Serial No. : 10/044,407
Filed : January 11, 2002
For : FOAMED FIREPROOFING COMPOSITION AND METHOD
Examiner : Toomer, Cephia D.
Art Unit : 1714
Attorney :
Docket No. : 621P001

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450
on September 29, 2004 (Date)

Kevin S. Lemack
Name of applicant, assignee, or Registered Representative

[Signature]
Signature
September 29, 2004
Date

DECLARATION UNDER 37 C.F.R. §1.132

I, Dennis M. Hilton, hereby declare:

That I am a now Research Manager for W.R. Grace & Co.-Conn. and have been since 1988; that from March of 1979 to 1988 I was a Senior Chemist for W.R. Grace, that from March of 1979 to the present I have worked in fire protection research and development where my responsibilities included development of fire protection formulations and commercialization thereof.

That I hold a Master's degree in Environmental Science from Rutgers University;

That I hold a B.S. degree in Chemical Engineering from Rutgers University;

That I am a named inventor on eight issued United States patents in the field of fireproofing;

That I have reviewed the above-referenced patent application as well as the Office Actions, and I am familiar with its prosecution and the

cited reference. The tests reported in the following pages were carried out by me or under my supervision, and I have made the following observations and conclusions with respect thereto.

1. A prefoam was formed by making a 5% solution of polyvinyl alcohol in water and foaming the solution. A mixture of cellulose and glass fiber (3.66%) and gypsum as the hydraulic binder (91.46%) was added to the resulting foam so that the concentration of PVA in the resulting foam was 4.88%. The mixture was spray applied to a steel substrate and had a density of 37.4 pcf.

2. A second foamed product was made in accordance with the present invention, wherein the same amounts of PVA, fiber and gypsum as above were first mixed and then were foamed. The resulting foam was spray applied to a steel substrate and had a density of 21.2 pcf.

3. Forming a prefoam first as in Chao '030 caused several problems that render the resulting product not practical for commercial use. Once the polyvinyl alcohol solution is foamed, the bubbles began to collapse. First they coalesced and thus became easier to break. The longer the time that passes, the more the bubble structure deteriorated. Since it takes time to pump the generated foam to a location where the other ingredients (the hydraulic binder, etc.) can be added, the bubble structure deteriorated significantly. The polyvinyl alcohol foam continued to deteriorate as the other ingredients were mixed in. In addition, pumping a foam was very difficult, since it is very compressible.

4. The significant reduction in density (43.3%) of the sprayed fireproofing that results when the process of the present invention is carried out and a prefoam is not used is due to less foam coalescing and results in the ability to protect more steel with the same weight of fireproofing. This results in a significant cost savings.

5. Perhaps even more significant is the added step of forming the prefoam. It takes considerable time to dissolve the PVA and make the 5% solution. For even moderate application rates of the product, 125 gallons per hour of the 5% PVA solution must be continually produced. Since

PVA can only reach 50% dissolved at 50°F in 45 minutes and 80% dissolved at 70°F, high temperatures are required as well as large mixing vessels on-site to meet the commercial requirements if a prefoam is employed as in Chao '030. Additional labor is required as well. These factors make it commercially unfeasible to form a prefoam.

6. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.


Dennis M. Hilton
Research Manager
W.R. Grace & Co.-Conn.